

**Sanford Underground Research Facility (SURF) Update**  
**Mike Headley, SDSTA Executive Director**  
**January 11, 2018**

2017 Milestones

- July – A groundbreaking was held on the 4850L for the Long-Baseline Neutrino Facility / Deep Underground Neutrino Experiment (LBNF/DUNE) project and included representatives from the White House, Congress, the Governor, DOE, Fermilab, SDSTA, and DUNE international partners.
- July – The Large Underground Xenon (LUX) dark matter experiment was decommissioned. LUX detector was placed on permanent display at the Sanford Lab Homestake Visitor Center.
- July – A ribbon cutting was held on the 4850L for the accelerator startup of the Compact Accelerator System for Performing Astrophysical Research (CASPAR) experiment.
- July – Mark Zuckerberg, Facebook CEO, visited SURF and hosted a live online video feed from the 4850L that has been viewed by over 4.2 million people.
- August – Fermilab selected a joint venture of the construction companies Kiewit and Alberici (KAJV) to manage the LBNF construction at SURF.
- September – The United Kingdom committed \$88M toward the LBNF/DUNE project along with accelerator advancements at Fermilab. CERN committed \$90M in 2016.
- October – The Majorana Demonstrator neutrino experiment released a scientific paper detailing their success in reducing backgrounds to a level where a larger scale, next generation experiment could be successful at SURF.
- October – The Ross Shaft rehabilitation reaches the 4850L with steel replacement activities.

2018 Plans

- January – The LUX/ZEPLIN (LZ) dark matter experiment begins experiment assembly at SURF.
- January – Construction starts to modify the 4850L Davis Campus for LZ and will conclude in June.
- February – The CASPAR experiment begins accelerator operations and physics data collection.
- May – The KAJV begins construction of infrastructure required to excavate the LBNF (called the pre-excavation construction phase). Excavation is currently planned to start in August 2019.
- October – The Ross Shaft rehabilitation concludes, and the shaft is commissioned for full operations.

Projected Federal Funds Budget (SD FY2019)

SURF Operations	\$14.6M
Ross Shaft Rehab / LBNF Construction Support	\$4.3M
LZ Experiment Support	\$1.3M
Support to other experiments	\$0.1M
Total	\$20.3M

K-12 Education and Outreach Progress

K-12 Students Participating				
	School Year			
Activity	2015-2016	2016-2017	2017-2018*	Total
School Assemblies	8,578	8,651	3,005	20,234
Science Curriculum Units	918	3,243	749	4,910
Field Trips to SURF	663	692	103	1,458
Total	10,159	12,586	3,857	26,602

\*Fall term only

- 17% of students participating are from schools with >10% American Indian population.
- 12% of students participating are from schools with >50% American Indian population.